## **DAVIS COUNTY BOARD OF HEALTH**

**DRINKING WATER FLUORIDATION REGULATION** 





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### 1.0 PURPOSE

The purpose of this regulation is to preserve, promote, and protect the public health, safety, and welfare of residents, visitors, and water operators in Davis County by To regulatinge the application of fluoride to Drinking Public Water Supplies Systems, for the purpose of promoting public health through the protection and maintenance of dental health.

To-ensuringe that ooptimal feluoride Levels in optimizing www.ater supplies are maintained targeted, and -

To ensurrequiring Ensuringe the safe application and storage of fluoride FFluoride compounds. Ceompounds.

#### 2.0 SCOPE

This regulation applies to all Public Drinking Water Supplies Public Water Systems in Davis County, pursuant to the order issued by the Davis County Health Department requiring Public Water Supplies to fluoridate, as required by UCA Section 19-4-111.

Compliance with these regulations does not preclude compliance with other applicable local, state, and federal laws.

### 3.0 AUTHORITY AND APPLICABLE LAWS

This regulation is promulgated adopted under the authority of by the Davis County Board of Health as authorized by in accordance with Utah Code Annotated (UCA) Sections 26A-1-121(1)(a) Utah Code Annotated and 19-4-111-Utah Code Annotated (1953) as amended.

The provisions of UCA <u>Section</u> 19-4-111 are hereby adopted and incorporated by reference subject to the additions, <u>clarifications</u>, <u>exceptions</u>, <u>and</u> modifications <del>and exceptions</del> <u>specifically</u> set forth in this regulation.

### 4.0 DEFINITIONS

- 4.1 ANNUAL CONTROL RANGE: A range of the adjusted fluoride ion concentration.
- 4.1—BUREAU OF LABORATORY IMPROVEMENT: A Bureau within the Utah Department of Health, responsible for establishing and enforcing standards for laboratories.
- 4.2 CALCULATED DOSAGE: The calculated amount of fluoride (mg/L) that has been added to a <a href="Public W-water Seystem">Public W-water Seystem</a>. The calculation is based on the total amount of fluoride (weight) that was added to the <a href="Public W-water Seystem">Public W-water Seystem</a> and the total amount of water (volume) that was produced.

- CONTROL RANGE: A range within which adjusted fluoridated Public Drinking Water Supplies Public Water Systems, shall operate to maintain Optimal Fluoride Levels.
- 4.3 DEPARTMENT: The Davis County Health Department.
- 4.3 DIRECTOR: The Director of the Davis County Health Department or an authorized representative.
- 4.4 DISTRIBUTION SAMPLE: A water sample taken from the Distribution System of the Public Drinking Water Supply that is representative of the water quality in the system.
- 4.54.4 DISTRIBUTION SYSTEM: A collection of pipes, valves, fire hydrants, storage tanks, and reservoirs that carries water from the water source(s) or treatment plant(s) that delivers water to its customers.
- 4.6 DIVISION: The Utah Division of Drinking Water that is a part of the Utah Department of Environmental Quality.
- 4.7 DRINKING WATER PROJECT: Any addition to or modification of the facility or facilities of an existing or new Public Drinking Water Supply, for the purpose of Water Fluoridation.
- 4.8 EXECUTIVE SECRETARY: The Executive Secretary of the Drinking Water Board, State of Utah, as appointed and with the authority outlined in 19-4-106 of the Utah Code Annotated.
- 4.5 FLUORIDE COMPOUNDSSURVEILLANCE, FLUORIDE: A chemical compound that contains the fluoride ion and is used to fluoridate drinking water, including: fluorosilicic acid, sodium fluorosilicate, or sodium fluoride. The regular review of monitored data and Split Sample results to ensure that fluoride levels are maintained by the Public Drinking Water Supply in a specific geographic area. The review is conducted by a source independent of the Public Drinking Water Supply, and as designated by the Director.
- 4.9 MILLIGRAMS/LITER: or mg/L, also equal to parts per million (ppm).
- 4.10 MONITORING, FLUORIDE: The regular analysis and recording of the fluoride ion content in the drinking water.
- 4.11—OPTIMAL FLUORIDE LEVEL: A fluoride concentration (mg/L) recommended by the Centers for Disease Control or other recognized health authority for prevention of dental caries. OVERFEED, FLUORIDE: Any measured level of fluoride above the control range of the Public Drinking Water Supply. Different levels of response are expected from the operator depending on the extent of the overfeed.
- 4.124.6 PUBLIC DRINKING-WATER SUPPLY SYSTEM (PDWS): A system, either publicly or privately owned, providing water through constructed conveyances for human consumption and other domestic uses, which has at least 15 service connections or serves an average of at least 25 individuals daily at least 60 days out of the year that provides piped water to the public for human consumption. To qualify as a Public Drinking Water Supply, a system must have 15 or more service connections or must regularly serve an average of at least 25 of the same individuals daily, 6 months or more per year, as defined in UAC Section R309-110-4:Definitions.

- 4.13 SANITARY SURVEY: An on-site inspection of a water system's facilities and operation. The Survey can be conducted by the Division of Drinking Water, Local Health Departments or other qualified individuals authorized in writing by the Executive Secretary. The Survey consists of a review of operating methods and records and a physical inspection of facilities and equipment.
- 4.144.7 SPLIT SAMPLE: A distribution water sample taken-collected by thea Public Wwater Systemplant operator or authorized personnel representative in duplicate or as a single sample divided into two samples., who analyze a portion of the sample and records the results on the monthly operating report. The operator or authorized personnel then forwards and the remainder of the sample forwarded to a certified laboratory for analysis.
- 4.15 WATER FLUORIDATION: The act of adjusting the fluoride concentration in the drinking water of a Public Drinking Water Supply to the Optimal Level.

### 5.0 REGULATION

- 5.1
- 5.2 5.1 Powers and Duties
- 5.3 The Davis County Health Department (DCHD) shall be responsible for the administration of this regulation. In addition to any other lawful powers and duties, DCHD shall:
- 5.4-
- 5.5 5.1.1 Require fluoridation of Public Drinking Water Supplies at Optimal Fluoride Levels in Davis County:
- 5.6 5.1.2 Require the submission of reports of fluoride addition and analysis, including the Calculated Dosage;
- 5.7 5.1.3 Provide fluoride surveillance;
- 5.8 5.1.4 Take distribution samples for fluoride analysis (these samples are in addition to the Public Drinking Water Supply's required samples);
- 5.9 5.1.5 Perform any and all acts permitted by law that are necessary for the successful implementation of this regulation.
- 5.10 Fluoride Compounds and Application Equipment
- 5.11 Plan Reviews:
  - The Drinking Water Project must conform to the *Utah Administrative Code, R309*. The addition and/or changing of fluoridation equipment require a review of plans and specifications with written approval from the Executive Secretary. A Project Notification form must also be completed and submitted to the Division of Drinking Water.
- 5.12—The construction of a Drinking Water Project shall not begin until complete plans and specifications have been approved in writing by the Executive Secretary.

#### 5.13 Evaluation of Fluoride Equipment:

Prior to the operation of fluoridation equipment for which a plan approval was obtained, an operational permit will be required. This operational permit is granted by the Executive Secretary.

5.14—An ongoing evaluation of fluoridation equipment shall be conducted at the time of any Sanitary Survey of any Public Drinking Water Supply that adds fluoride to its water prior to distribution.

### ----Fluoride Compounds:

Sodium fluoride, sodium fluorosilicate, or fluorosilicic acid may be used to fluoridate Public Drinking Water Supplies. Fluoride Compounds shall conform to the applicable American Water Works Association (AWWA) standards and/or American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) Standard 60.

5.15 Other fluoride compounds that may be available must be approved by the Executive Secretary.

### 5.16 Chemical Feed Equipment and Methods:

Chemical feed equipment and methods shall conform to the pertinent rules of the Drinking Water Board as found in *R-309* of the *Utah Administrative Code* and any other applicable local, state, and/or federal regulations.

5.17

#### 5.185.1 Fluoride Levels

5.18.1 Split Samples and the calculated dose shall be taken into consideration to determine the validity of submitted sample results. Results of samples collected by the Davis County Health Department that are determined by laboratory analysis, in a lab certified for fluoride analysis may also be taken into consideration to determine compliance.

### 5.18.2-Review:

A 2007 review of Section 5.4.1 above has determined that as of May 1, 2007 the Control Range shall be 0.7 to 1.0 mg/L with an annual average of 0.8 mg/L.

### 5.18.3 Review:

A 2010 review of Section 5.4.1 above has determined that as of November 8, 2010 the Control Range shall be 0.6 to 0.8 mg/L with an annual average of 0.7 mg/L.

### 5.18.45.1.1 Monitoring.

Fluoride levels shall be monitored throughout the Distribution System.

### 5.1.1.1 Calculated Dosage.

The Calculated Dosage shall be recorded daily.

### 5.1.1.2 Sampling.÷

Fluoride levels in the Distribution System shall be determined daily

weekly by the PWS at each of the representative points in the Distribution System as defined in the sampling plan.

5.18.4.1.15.1.1.2.1 The sampling plan shall be approved by submitted to the Department. When there are several zones or areas, the sample sites can be rotated from day to day, providing the entire system is covered in one week. If only one source is used for an area, and there is no mixing of this source with other water, fluoride levels can be determined at the source, providing monitoring takes place at a point sufficiently distant to allow complete mixing.

### 5.1.1.3 Split Sample.

A\_monthly-Split Sample shall be taken monthly. One portion shall be analyzed by the PWS, and the second shall be for comparison analysis and-submitted for comparison to a laboratory that is certified by the Bureau of Laboratory Improvement for fluoride analysis.

5.18.4.1.25.1.1.3.1 The Split Sample analyzed by the PWS shall have a fluoride ion concentration that is within 20% of the fluoride ion concentration measured by the certified laboratory.

### 5.1.1.4 Analytical Methods.÷

Analysis of fluoridated water shall be done with a fluoride specific ion electrode test or with the colorimetric method (SPADNS) if there are no interfering compounds, such as halogens consistent with the requirements found in 40 CFR 141.23 – Inorganic Chemical Sampling and Analytical Requirements.

- <u>5.1.1.4.1</u> Continuous monitors <u>can-mayalso</u> be used, provid<u>eding</u> they are installed at <u>a-representative points</u> in the Distribution System.
- 5.1.1.4.2 Analytical methods which do not perform with equivalency to Split Samples shall not be used.
- <u>5.18.4.1.3</u>5.1.1.4.3 Instructions provided by the manufacturer for analytical equipment shall be followed.

## <u>5.18.4.2</u>5.1.1.5 Reporting.

The PWS shall submit a report each month to the Department. The report shall contain the following information:

The Public Drinking Water Supply PWS that adjust the fluoride content of their water, shall submit monthly reports to the Davis County Health Department, P.O. Box 618, Farmington, Utah 84025. The monthly report shall contain the following information:

5.1.1.5.1 results of daily fFluoride mMonitoring for the previous month, including the address and description of the sampling point;

5.1.1.5.2 results of the Monthly Split Sample, and,

5.1.1.5.3 the daily Calculated Dosage.

Copies of this report should also be made available to the Utah State

Department of Health, Oral Health Program.

**5.18.5** The Public Drinking Water Supply as required by Utah Administrative Code, R309, shall also report any chemical addition to the Division of Drinking Water.

5.18.6 Optimal Fluoride Levels:

5.18.7 Optimal Fluoride Levels and Control Ranges as established by this regulation shall be reviewed annually by the Davis County Health Department and adjusted accordingly.

5.18.8

5.18.9 OverfeedsResponse to Overfeeds

5.1.2 Control Range Fluoride Concentrations.

### 5.18.9.15.1.2.1 Optimal Fluoride Level.

<u>The oOptimal Fluoride fluoride</u> levels of 0.7 mg/L shall be maintained targeted throughout the Distribution System. between the Control Range of 0.8 to 1.4 mg/L with an annual average of 0.9 mg/L.

5.1.2.2 Compliance. Annual Control Range.

The Annual Control Range of 0.6 mg/L to 0.8 mg/L shall be achieved at each Distribution System sampling site.

5.1.2.2.1 Compliance shall be determined by taking using the monthly reports submitted to the Department, the annual average of the monthly reports submitted by the Public Drinking Water Supply as required in Section 5.4.2.

5.1.2.2.2 The Department may exclude time periods of reported underfeeds when calculating the Annual Control Range.

5.18.9.2 Fluoride Overfeeds.

Fluoride levels above 1.0 mg/L are considered fluoride overfeeds. A PWS shall follow the actions listed in Table 1 whenever an overfeed has been detected.

## **Table 1: Corrective Actions Required for Fluoride Overfeeds**

Fluoride Level	PWS Actions	
	1. Leave the fluoridation system on.	

Fluoride Level	PWS Actions	
>1.0 mg/L to 2.0 mg/L	2. Determine if there is a malfunction and make any necessary	
(over 30-minute continual	repairs.	
average or single sample	3. Make dosage adjustments to the system as necessary.	
analysis)		
2.1 mg/L to 4.0 mg/L	1. Leave the fluoridation system on.	
(over 30-minute continual	2. Determine malfunction and make repair.	
average or single sample	3. Notify the Department within seven days.	
analysis)	4. Comply with any EPA and DDW reporting requirements.	
4.1 mg/L to 10.0 mg/L	1. Turn off the fluoridation system immediately.	
	2. Determine malfunction and make repair.	
	3. Notify the Department within 24 hours.	
	4. Take water samples for fluoride analysis at several locations	
	within the Distribution System until the results are below 1.0	
	mg/L.	
	5. Measure the pH of the water to determine corrosivity.	
	6. Notify the Department when fluoridation has resumed.	
	7. Comply with any EPA and DDW reporting requirements.	
>10.0 mg/L	1. Turn off the fluoridation system immediately.	
	2. Notify the Department and the DDW immediately.	
	3. Flush out the water lines containing the high fluoride	
	concentration (> 10 mg/L).	
	4. Notify the public to prevent the consumption of water with the	
	high fluoride concentration.	
	5. Determine malfunction and make repair.	
	<u>6. Take water samples for fluoride analysis at several locations</u>	
	within the Distribution System until the results are below 1.0	
	mg/L.	
	6. Measure the pH of the water to determine corrosivity.	
	7. Obtain approval from the Department and the DDW prior to	
	resuming fluoridation.	
	8. Comply with any EPA and DDW reporting requirements.	

## 5.1.2.4 Fluoride Underfeeds.

Fluoride levels below 0.5 mg/L are considered fluoride underfeeds. A PWS shall follow the actions listed in Table 2 whenever an underfeed has been detected.

**Table 2: Corrective Actions Required for Fluoride Underfeeds** 

Table El Coll Collections (Coquired for Flacified Chacifiedas			
<u>Duration</u>	PWS Actions		
Less than two (2)	1. Determine if there is a malfunction and make any necessary		
consecutive weeks	repairs.		
	2. Make dosage adjustments to the system as necessary.		

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<u>Duration</u>	PWS Actions	
Over two (2) weeks to six	1. Notify the Department within three (3) weeks, starting from the	
(6) months	first day of the underfeed.	
	2. Submit an action plan to the Department containing an	
	expected date of correction.	
Over six (6) months	1. Review underfeed related activities with the Department and	
	comply with the required action plan as approved by the	
	Department.	

### 5.18.9.3 Public Notification:

Public notification may be required in accordance with *Utah Administrative Code, R309* if fluoride levels reach 2 mg/L.

## 5.18.9.4 Underfeeds Table.:

Should the Public Drinking Water SupplyPWS fluoridation equipment malfunction or be taken off-line, and the optimum level of fluoride be affected, the following steps shall be taken:

arrected, the following steps shall be taken.			
Time of Underfeed	<u>Actions</u>		
For I <u>Less than two (2)</u>	No action need be takennecessary if the equipment is temporarily		
consecutive weeks	off-line.		
Up to three (3) months	The Public Drinking Water SupplyPWS shall contact the Davis		
	County Health Department in writing with a proposed		
	plan of action and an anticipated correction date by		
	week three (3).		
Up to six (6) months	The PWS shall continually update the Department on the		
	underfeed remediation.		
For more than six (6) months	A community <u>Community</u> action <u>Action program</u> <u>Program shall be initiated</u> . This would <u>shall include</u> informing health professionals about the situation prior to any public information being released.  The <u>Department maypublic shall then be fully</u> informed <u>the public</u> through a news release from the		
	Davis County Health Department.		

## 5.19

### 5.20 For less than two consecutive weeks:

No action need be taken if the equipment is off-line.

## 5.21—For greater than two consecutive weeks, up to six months:

The Public Drinking Water Supply shall contact the Davis County Health Department in writing with a proposed plan of action and an anticipated correction date by week three.

### 5.22 For more than six months:

A community action program shall be *initiated*. This would include informing health professionals about the situation prior to any public information being released. The public shall then be fully informed through a news release from the Davis County Health Department.

### 5.235.2 Operator Safety

5.23.1 Compliance with UOSHA:The design of the plant shall be in accordance with the Utah Occupational Safety and Health Act (UOSHA). The designer and Public Drinking Water Supply management are responsible to see that applicable UOSHA standards are incorporated into the facility design and operation.

## 5.23.2 Storage and Emergency Procedures

5.2.1 Storage of Fluoride Compounds.

#### 5.2.1.1 ÷

Fluoride  $\underline{\mathbb{C}}$  compounds shall be isolated from other chemicals to prevent contamination.

- <u>5.2.1.2 Fluoride C</u>Compounds shall be stored in covered or unopened shipping containers.
- <u>5.2.1.3</u> Space shall be provided for an adequate supply of chemicals and for dry storage conditions.
- <u>5.2.1.4</u> Unsealed storage units for fluorosilicic acid shall be vented to the atmosphere at a point outside any building.
- <u>5.2.1.5</u> Bags, fiber drums and steel drums shall be stored on pallets.
- 5.23.2.15.2.1.6 All chemical containers shall be labeled with the product name.
- 5.23.2.25.2.1.7 Material Safety Data Sheets (MSDS) shall be posted at all chemical injection sites.

#### 5.2.2 Accidental Release.÷

In the event of an uncontained or accidental release to the environment-in excess of five gallons, operators are to follow the "Accidental Release Measures" instructions found on the MSDS and notify the Department immediately.

5.24 The Davis County Environmental Health Division Department shall be notified immediately.

### 5.255.3 Training:

There must be at least one trained operator that is in charge of the fluoridation system at all times.

#### 5.3.1 Training Frequency.

A minimum of three hours of fluoridation trainings shall be completed by each operator involved with fluoride operations. The training shall be completed within six (6) months of assignment and every two (2) years thereafter.

5.3.1.1 All fluoridation trainings shall be approved by the Department.

### 5.3.2 Training Content.

Training shall include, but is not limited to the following:

- 5.3.2.1 Operations operations and, maintenance;
- 5.3.2.2 , Ffluoride chemicals Compounds;
- 5.3.2.3 \_-operator safety; and,
- 5.3.2.4 -regulatory requirements.

5.3.2.4.1 review;

5.3.2.4.2 updates; and,

---reporting.

5.3.2.4.3

A minimum six-hour fluoridation-training course, recognized by the Davis County Health Department, shall be completed by at least one operator in charge of the fluoridation system(s) before operation begins.

A three-hour biennial fluoridation review course recognized by the Davis County Health Department shall be required to maintain compliance. Training shall include, but is not limited to, the following: operator safety, regulatory updates/review, operations and maintenance.

### 5.3.3 Documentation.

Documentation of training shall be submitted to the Davis County Health
Department by January 15 of each year The PWS shall keep a record of operator
training and provide training records to the Department upon request.

### 5.4 Enforcement

It is unlawful for any person to interfere with the Department in the performance of its duties.

### 5.4.1 Notice.

If the Department finds that a PWS is in violation of this regulation, the Department shall notify the PWS, in writing, of its findings and order PWS to take specific steps to correct such violations.

5.4.1.1 A notice may be issued for any violation of this regulation.

### 5.4.2 Failure to Comply.

Failure to comply with a notice or order may result in further actions taken by the Department in accordance with relevant provisions of Utah Code, including, but not limited to Sections 26-23-6, 19-5-115, and 26A-1-123..÷

### 6.0 PENALTY

6.1—Any person who shall violate any provision of the Regulation or who shall refuse to comply with a lawful order or notice from the Davis County Health Department is subject to civil and criminal penalties as provided by 26A-1-12 Utah Code Annotated (1953) as amended and any other law.

### 6.1 Criminal Penalties Pursuant to UCA Section 26A-1-123

- 6.1.1 Any person determined guilty by a court of: violating any of the provisions of this regulation; or violating, disobeying, or disregarding any Notice or Order issued under this regulation is guilty of a class B misdemeanor.
- 6.1.2 Any person found guilty of a subsequent similar violation within two years of the initial violation is guilty of a class A misdemeanor.
- 6.1.3 Each day such violation is committed or permitted to continue shall constitute a separate violation.
- 6.1.4 Conviction under this section does not relieve the person convicted from civil liability.

#### 6.2 Civil and Administrative Penalties

- 6.2.1 Any person who violates any of the provisions of this regulation or violates, disobeys, or disregards any Notice or Order issued under this regulation shall be subject to the payment of costs incurred in the enforcement of any violation or notice issued, including costs attributable to any involved local agencies.
- 6.2.2 A penalty pursuant to the provisions of UCA Subsection 26-23-6(2).
- 6.2.3 A penalty pursuant to the provisions of UCA Section 19-5-115.
- 6.2.4 The exercise of civil and administrative penalties shall be subject to the Department's Adjudicative Hearing Procedures Regulation.

## 7.0 SEVERABILITY

If any provision, clause, sentence, or paragraph of <a href="these-regulations">these-regulations</a> this regulation or the application or circumstances shall be held invalid, such invalidity shall not affect the other provisions or applications of <a href="these-regulations-this regulation">these-regulations</a>. The valid part of any clause, sentence, or paragraph of <a href="these-regulations-this regulation">these-regulation</a> shall be given independence from the invalid provisions or application, and to this end, the provisions of <a href="these-regulations-this regulation">these-regulations</a> this regulation are <a href="hereby-hereby-declared">hereby-hereby-declared</a> to be severable.

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N/A

IN WITNESS WHEREOF, the Davis County Board of Health has passed, approved, and adopted this regulation this  $4^{th}$  day of September, 2001.

Effective date: September 4, 2001

Revised and Amended: February 8, 2005.

Revised and Amended: March, 13, 2007.

Revised and Amended: October 7, 2010.

Revised and Amended: August 9, 2011.

Revised and Amended: August 13, 2013

Revised and Amended: February 11, 2020

Signed:		Attest:	
	Troy Wood		Brian Hatch, MPH
	Board Chairman		Director of Health